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ABSTRACT

This digest describes a selection of environmental education research studies that were included in the ERIC system in 1985. It is noted that much of the reported research in environmental education continues to deal with the affective domain, but that there are stronger efforts toward relating affective components with knowledge gain, conceptualization, and perception. Studies are reviewed in the areas of: (1) opinions and attitudes; (2) marine orientations; (3) educating the public; (4) attitudes toward animals; and (5) teacher factors. A list of 17 references are also included. (ML)

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ERIC Clearinghouse for Science, Mathematics and Environmental Education

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Current Research in Environmental Education

As has been the case historically, much of the reported research in environmental education continues to deal with the affective domain. However, it appears that there is increasing sophistication in research design, as well as stronger effort toward relating affective components with knowledge gain, conceptualization, and perception.

The studies reported in this digest are a selection of environmental education research reported through ERIC during the past year. They were selected for inclusion here as representative studies; the interested researcher will find many others, perhaps including some of more direct interest or use for his or her specific purposes, through a search of the ERIC system.

Opinions and Attitudes

A "New Environmental Paradigm Scale" (Geller and Lasley, 1985) has been developed to examine and measure paradigmatic shifts in the public's orientation toward the physical environment. This study reports findings across three different populations which confirm the dimensionality of a three-factor model — "balance of nature," "limits to growth," and "man over nature."

Hepburn (1985) has summarized five studies completed during the present decade; in essence, they report that youth today are committed to rewarding careers, good jobs, traditional values, marriage, and family. They are fixated on personal bread-and-butter issues and avoid community and group problems, including environmental problems. Similar conclusions have been reported by Thompson and Gasteiger (1985), who compared findings of 1971 and 1981 surveys of university student perceptions and attitudes related to environmental/energy questions. Five major categories were assessed; significant differences were found between the surveys. A more materialistic lifestyle, with less concern for environmental issues, was indicated in the more recent survey.

Conceptions of and attitudes toward technology held by 13-year-old students in The Netherlands were investigated (Raat and de Vries, 1985). Results included: (1) students think that technology is a broad, important, and not-too-difficult subject, though they had difficulty in differentiating it from physics; (2) girls are less interested in technology than are boys; (3) girls and boys both think that girls have the aptitude for technology; and (4) students who have at least one parent involved with technology are better acquainted with technology and more aware of its importance.

Marine Orientations

A Canadian survey (Walter and Lien, 1985) questioning about 4000 students and 200 teachers on marine-related topics found a utilitarian orientation to the ocean by coastal students; many identified the school as the most important source of information about the marine environment. However, the students with the highest knowledge scores reported that they learned most about oceans from television and direct experience with the sea. Teachers responded positively to the need for more marine education (89 percent), and 99 percent of the teachers indicated that their students find the ocean interesting.

A study by Fortner and Lyon (1985) investigated the role of television as a medium for communicating environmental information to the general public, by determining the influence of a Cousteau documentary dealing with the sea on viewer knowledge and attitudes, and assessing changes in those characteristics over time. Results indicated that such a presentation had positive effects in both areas.

Educating the Public

Griffin (1985) reported an out-of-school study of homeowners conducted to determine the effect of educational level on knowledge gain about energy conservation and whether media use is associated with differential gain in knowledge across educational levels. Results suggested that the more highly educated residents appeared to have gained information about the energy situation and its tradeoffs at a faster rate than the less educated. Neither public affairs energy knowledge nor practical energy knowledge directly affected energy conservation behavior, though it appears that at least practical energy knowledge indirectly facilitated actions to save energy in the home, such as lowering thermostats. None of the media usually relied on by government agencies, utilities, interest groups, and others to convey energy information to the public appeared to be related to the holding of practical knowledge.

Attitudes toward Animals

A current topic of interest deals with attitudes about animals, with particular concern directed toward the differences in perspectives presented by "management"-type curricula and those espousing humane approaches. The problem of cruelty to animals was addressed from a research perspective by DeRosa (1985), who reviewed studies of possible causes of childhood cruelty and identified common contributing factors, discussing implications for educators and suggesting directions for detection and prevention of cruelty.

Perkes (1984) investigated the relationship between the amount of apprehension anticipated by elementary teachers, if asked to pick up or pet common animals, and their positions on such environmental issues as using preserved animals for dissection, protection of environment versus economic concerns, and having animals in the elementary classroom. Teachers reporting higher levels of apprehension were generally more in favor of the protection of the environment at the expense of economic growth. Also, apprehension toward animals was positively correlated with the position of having fewer human population controls.

Vockell and Hodal (1984) reviewed research on measuring humane attitudes, American attitudes toward animal life, strategies of humane education, and attitude improvement with respect to animals. They reported evidence that attitudes of Americans toward animal life are strongly negative, and that this negativeness increases as children grow older.

A report by Kellert and Westervelt (1984) identified some of the social, behavioral, and demographic effects on young people's perceptions of the natural world in general, and animals in particular. The existence of three stages in the development of children's perceptions of animals was noted in a later study by Kellert (1985). The transition from six to nine years of age primarily involved major changes in affective, emotional relationships to animals. The change from ten to thirteen years of age was marked by a major increase in cognitive knowledge and understanding. The

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shift from thirteen to sixteen years of age witnessed a dramatic broadening in ethical concern and ecological appreciation of animals and the natural environment.

With Respect to the Teacher

Studies dealing with the success of transfer of teacher attitudes to their students have been conducted for many years, in many areas, with mixed results. Lawrenz (1986) conducted a study to determine if, after in-service programs, teachers' attitudes toward energy conservation were transferred to their students, including fourth-grade, seventh-grade, and high school students. Results indicated that the hoped-for transfer of teacher attitudes, in this case with respect to energy concerns, may not take place.

The New Mexico Solar Energy Institute education program has attempted to influence teachers to increase the quantity and quality of teaching about renewable energy resources and their uses. Rowland's (1985) study focused on evaluation of several program components, including a newsletter and a curriculum package with content related to a solar home. He found that overall, these and other program activities have been successful in increasing teaching about renewable energy.

Results of Buethe's (1985) study investigating the capability of Indiana elementary and secondary school teachers to deal effectively with education about the environment and related energy issues revealed that current teachers know too little about energy and the environment, but know somewhat more than did their 1974-75 counterparts. Indiana teachers are caring, but are only partially literate with respect to energy and the environments.

Techniques for improving knowledge and attitude levels of elementary, secondary science, and other secondary teachers are another area of research interest. Mills, et al. (1985) evaluated an interactive computer simulation, the "Water Resource Management Simulator," as a training tool for in-service teachers. Analysis of results indicated that users of the simulator exhibited higher knowledge gains than did non-users, but detected no significant differences with respect to attitude responses.

A study of pre-service elementary school teachers to determine if listing thoughts evoked after exposure to arguments presented in a two-sided persuasive communication serves to enhance attitude change and if the number of favorable thoughts listed following such exposure are related to changed attitudes toward energy conservation was reported by Koballa (1986). He noted that brief persuasive communications are viable mechanisms, particularly in the short term.

Summary

The perponderance of environmental education research continues to deal with affective learning. However, increasing concern with relationships between and among affective, perceptual, and conceptual dimensions of environmental teaching and learning is much in evidence.

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